

## Mother-son Parental Care in Horned Larks

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**ABSTRACT.**—We report the first known observation of mother-son parental care and potential inbreeding in Horned Larks (*Eremophila alpestris*) near Smithers, British Columbia, Canada. The nest was found with four nestlings and was attended by a female and her son from the previous year. The nestlings appeared healthy, were above average mass, and fledged successfully. The high return rates of adult and juvenile Horned Larks at our study site may have facilitated this social pairing by close relatives. The possibility the son was a helper at the nest is discussed. Received 10 March 2006. Accepted 5 September 2006.

Inbreeding depression in birds has been reported to affect a number of traits including hatching success (Bensch et al. 1994, Spottiswoode and Moller 2003), nestling mortality (Greenwood et al. 1978), survival (Keller 1998), and recruitment (Bulmer 1973). Pair formation among close relatives is generally thought to be rare (Pusey 1987) due to the deleterious effects of inbreeding and behavioral mechanisms such as natal dispersal that appear to have evolved to reduce the chances of inbreeding (Weatherhead and Forbes 1994). However, rates of inbreeding may be under reported because estimating inbreeding requires long-term studies of marked individuals (Keller 1998). Indeed, new evidence suggests that inbreeding may be more prevalent than previously thought (Keller and Waller 2002). We report the first known instance of mother-son parental care and potential inbreeding in Horned Larks (*Eremophila alpestris*).

### OBSERVATIONS

We observed a case of a mother and son social pair of Horned Larks providing parental

care in June 2005 on Hudson Bay Mountain near Smithers, British Columbia, Canada (52° N, 127° W). The study site is approximately 4 km<sup>2</sup> and there are typically 40–50 Horned Lark pairs breeding at the site. The population of Horned Larks in the region is not well defined; however, neighboring mountain ranges (>25 km distant) likely support breeding populations. Each year we locate and monitor Horned Lark nests, and band adults and nestlings with individual color band combinations. The female in this case was banded as a breeding adult in 2004 and the male was banded as one of her nestlings in 2004. The female's nest was found in 2004 while she was incubating, and she subsequently fed and successfully fledged five nestlings, one of which returned to the study area in 2005. The female's mate from 2004 returned in 2005; however, she formed a social pair with her son from 2004 and her previous mate paired with a new female (the male was first seen on 16 May 2005 together with his unbanded mate). The son was first seen on 24 May 2005 on the same territory where the nest was found; the female was not seen until the nest was found. On 19 June 2005 we found a nest with four nestlings (7–8 days old) that were actively being fed by the mother-son pair; the nest fledged on 21–22 June 2005. The male and female at this nest were captured and their band numbers read to confirm their identity. The male and female of the mother-son pair were observed provisioning young at the nest during four nest visits totaling approximately 4 hrs. Both adults were equal participants in provisioning nestlings and no other individuals were seen around the nest.

The female's 2004 mate retained his 2004 territory which was >500 m from the mother-son pair. He had two nests with his new mate in 2005; both clutches were depredated. This male was not seen with the female or on the territory of the mother-son pair in 2005.

The clutch size (four young) of the mother-

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son nest was within the range for the population in 2005 ( $n = 57$ , mean  $[\pm \text{SE}] 3.7 \pm 0.1$ , range 2–5). The nestlings appeared healthy; they were alert, active, and showed no signs of ectoparasites. They were weighed at 8–9 days of age and had slightly larger mass ( $n = 4$ ,  $24.2 \pm 1.4$  g, range 21–27.5) than nestlings of the same age in other nests ( $n = 20$ ,  $22.1 \pm 0.56$  g, range 16.5–26.5).

#### DISCUSSION

Birds often use breeding success in the previous year as a cue to change or remain with a mate (Dubois and Cezilly 2002). In this case, the female Horned Lark switched mates and apparently paired with her son even though she successfully fledged young in the previous year with her previous mate. It is possible that she left her previous mate as a result of coercion; however, in songbirds females typically initiate mate switching (Grant and Grant 1987, Linden 1991, Dhondt and Adriaensen 1994, Blondel et al. 2000).

There are several possible explanations for this observation provided the nest was the result of mother-son inbreeding. First, if there are no mechanisms by which closely related Horned Larks recognize each other, mother-son pairings may be as common as expected under random mating. We observed a return rate of 80% of banded adults in our study and in 2005, 25% of banded juveniles from 2004 returned (AFC, unpubl. data). The high return rates of both adults and juveniles may have facilitated a social pairing by close relatives. Second, the costs of avoiding inbreeding or failing to reproduce may outweigh the costs of inbreeding. Finally, females may have access to extra-pair copulations which would negate the effects of pairing with a close relative. However, long-term studies of color-marked Horned Lark populations are lacking and rates of extra-pair copulation are unknown (Beason 1995).

This observation may possibly be an example of helping at the nest. Helpers at the nest are birds that aid a breeding individual that is not its mate and/or feed nestlings or other birds that are not their offspring or mate (Skutch 1961). Only one instance of helping has been reported for Horned Larks (Beason 1984). His observation occurred when fledglings intruded onto a nearby territory and were

fed by adults other than their own parents. This may have been an example of helping; however, it is more likely to have been the result of the adults mistaking intruding fledglings as their own offspring. It is possible for our observation of mother-son offspring feeding that the son was a helper at the nest. However, given the son was observed on the same territory a month before the nest was found, the female was not seen with another male, and no birds other than the mother-son pair were seen tending the nest, this scenario seems unlikely. It is also possible the male from 2004 mated polygynously with the female at this nest and his new mate in 2005. However, this scenario is unlikely since the two territories were more than 500 m apart, were separated by several territories, the male and female were not seen together, and the male did not feed at this nest even after both his 2005 nests failed.

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## Interspecific Interactions between Marsh-dwelling *Ammodramus* Sparrows at a Migration Stopover

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**ABSTRACT.**—The social behaviors of Le Conte's (*Ammodramus leconteii*) and Nelson's Sharp-tailed (*A. nelsoni*) sparrows are poorly documented, as are their interactions with one another, even in the prairie marshes they share during the breeding season. We report the regular coincident presence and similar habitat associations of these species at a fall migration stopover, the Baker University Wetlands, near Lawrence, Kansas, over an 11-year period, and describe social behaviors (several previously unrecorded) at the site, including an aggressive interspecific encounter. *Received 20 March 2006. Accepted 5 September 2006.*

Le Conte's Sparrow (*Ammodramus leconteii*) and Nelson's Sharp-tailed Sparrow (*A. nelsoni*) are physically similar, closely related species that breed syntopically in the marshy grasslands and bogs of Canada's prairie provinces and the extreme northcentral United States (Murray 1969). Little is known about these species' interactions on the breeding grounds despite their close evolutionary relationship and intimate ecological association, and nothing has been reported of their behav-

ior toward one another during migration (Greenlaw and Rising 1994, Lowther 2005). Here, we report an instance of interspecific aggression at a migration stopover.

Shortly after sunrise on 21 October 2004, while photographing Le Conte's Sparrows at the Baker University Wetlands, near Lawrence, Kansas (38° 55' N, 95° 14' W), we encountered a Nelson's Sharp-tailed Sparrow moving through the vegetation in our direction. It paused, perched on the fallen-dried stem of a sunflower (*Helianthus* sp.). A few seconds later, a Le Conte's Sparrow landed ~60 cm from the sharp-tail and quickly clambered down the stem toward it, initiating a confrontation that ended after ~5 sec when the sharp-tailed sparrow flew ~10 m away. We did not have the presence of mind to recall specifics of wing flapping and vocalizations during the fight except to note that they occurred; some rising raspy cries may have been equivalent to the "scream" of the Saltmarsh Sharp-tailed Sparrow (*A. caudacutus*; Greenlaw and Rising 1994). One of us (AFLAP) took two photographs during the incident. The first (Fig. 1) shows both individuals with heads forward and beaks gaping. The second (Fig. 2), taken just before the sharp-tailed sparrow flew away, shows the Le Conte's Sparrow, having moved much closer to the sharp-tailed sparrow, with neck fully extended and beak open as if to deliver a bite. These behaviors, previously unreported for these

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